JAN

90358

Access DB# _____

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: BEN SACKEY Examiner #: 73489 Date: 3/31/03
Art Unit: 1626 Phone Number 305-6889 Serial Number: 10/049,463
Mail Box and Bldg/Room Location: CM1 3B19 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Method for making methyl ethyl Ketone Cyanohydrin

Inventors (please provide full names): Croix et al.

Earliest Priority Filing Date: 7/29/99

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

hydrocyanic acid + methyl ethyl ketone —(diethylamine catalyst and an amine catalyst)→ $CH_3-\overset{\overset{CN}{|}}{\underset{\underset{OH}{|}}{C}}-CH_2CH_3$ methyl ethyl ketone cyanohydrin

Jan Delaval
Reference Librarian
Biotechnology & Chemical Library
CM1 1E07 – 703-308-4498
jan.delaval@uspto.gov

****

STAFF USE ONLY

Searcher: _____
Searcher Phone #: 4466
Searcher Location: _____
Date Searcher Picked Up: 4/2/03
Date Completed: 4/2/03
Searcher Prep & Review Time: _____
Clerical Prep Time: 10
Online Time: 10

Type of Search

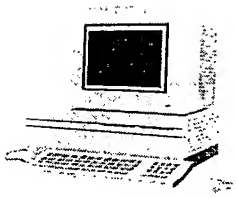
NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) ✓
Bibliographic ✓
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN ✓
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

PTO-1590 (8-01)

BioTech-Chem Library
Search Results
Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact ***the BioTech-Chem searcher*** who conducted the search ***or contact***:

Mary Hale, Supervisor, 308-4258
CM-1 Room 1E01

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* *(Example: 1610)*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:
  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature
    (journal articles, conference proceedings, new product announcements etc.)
- *Relevant prior art **not found**:*
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Search results were not useful in determining patentability or understanding the invention.

Other Comments:

Drop off completed forms at the **Circulation Desk CM-1,** or send to Mary Hale, **CM1-1E01 or e-mail mary.hale@uspto.gov.**

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=> d his

     (FILE 'REGISTRY' ENTERED AT 17:17:38 ON 02 APR 2003)
                DEL HIS
                E C5H9NO/MF
L1          469 S E3
L2          242 S L1 AND NR>=1
L3          227 S L1 NOT L2
L4           30 S L3 AND ?CYAN?/CNS
L5           48 S L3 AND ?NITRIL?/CNS
L6           68 S L4,L5
L7            3 S L6 AND BUTANENITRILE AND 2 HYDROXY 2 METHYL
                E METHYL ETHYL KETONE/CN
L8            1 S E3
                E DIETHYLAMINE/CN
L9            1 S E3
                E HYDROCYANIC ACID/CN
L10           1 S E3
                SEL RN L7
L11           1 S E1-E3/CRN

     FILE 'HCAPLUS' ENTERED AT 17:20:18 ON 02 APR 2003
L12          60 S L7
L13          11 S L7/P
L14       24426 S L8 OR METHYLETHYLKETONE OR METHYL ETHYLKETONE OR METHYLETHYL
L15       27282 S L10 OR HCN OR HYDROCYANIC ACID OR HYDROGEN CYANIDE
L16       20861 S L9 OR DIETHYLAMINE OR (DIETHYL OR DI ETHYL OR DIET)()AMINE
L17          25 S L12 AND L14-L16
L18          10 S L13 AND L17
L19          10 S L13 AND L14
L20           7 S L13 AND L15
L21           1 S L13 AND L16
L22           1 S L21 AND L19,L20
L23          10 S L13,L18-L21 NOT L22

=> fil reg
FILE 'REGISTRY' ENTERED AT 17:23:44 ON 02 APR 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2003 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:     1 APR 2003  HIGHEST RN 501325-53-7
DICTIONARY FILE UPDATES:    1 APR 2003  HIGHEST RN 501325-53-7

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

Crossover limits have been increased.  See HELP CROSSOVER for details.

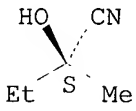
Experimental and calculated property data are now available.  See HELP
PROPERTIES for more information.  See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> d ide can tot l7

L7   ANSWER 1 OF 3  REGISTRY  COPYRIGHT 2003 ACS
RN   174849-22-0  REGISTRY
```

CN **Butanenitrile, 2-hydroxy-2-methyl-, (2S)- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Butanenitrile, 2-hydroxy-2-methyl-, (S)-**
FS STEREOSEARCH
MF **C5 H9 N O**
SR CA
LC STN Files: CA, CAPLUS

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

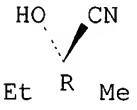
2 REFERENCES IN FILE CA (1962 TO DATE)
2 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 134:109910

REFERENCE 2: 124:224570

L7 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2003 ACS
RN 122045-29-8 REGISTRY
CN **Butanenitrile, 2-hydroxy-2-methyl-, (2R)- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Butanenitrile, 2-hydroxy-2-methyl-, (R)-**
OTHER NAMES:
CN **(R)-Butan-2-one cyanohydrin**
FS STEREOSEARCH
MF **C5 H9 N O**
SR CA
LC STN Files: AGRICOLA, BEILSTEIN*, CA, CAPLUS, CASREACT, GMELIN*
(*File contains numerically searchable property data)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

5 REFERENCES IN FILE CA (1962 TO DATE)
5 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 134:109910

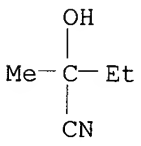
REFERENCE 2: 119:43947

REFERENCE 3: 118:58234

REFERENCE 4: 115:91338

REFERENCE 5: 111:173178

L7 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2003 ACS
RN 4111-08-4 REGISTRY
CN **Butanenitrile, 2-hydroxy-2-methyl- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **Butyronitrile, 2-hydroxy-2-methyl- (6CI, 7CI, 8CI)**
OTHER NAMES:
CN **2-Butanone, cyanohydrin**
CN **2-Hydroxy-2-methylbutanenitrile**
CN **2-Hydroxy-2-methylbutyronitrile**
CN **2-Methyl-2-hydroxybutyronitrile**
CN **Butanone cyanohydrin**
CN **Ethyl methyl ketone cyanohydrin**
CN **Methyl ethyl ketone cyanohydrin**
FS 3D CONCORD
DR 73683-34-8
MF **C5 H9 N O**
CI COM
LC STN Files: BEILSTEIN*, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CHEMCATS, CHEMLIST, GMELIN*, IFICDB, IFIPAT, IFIUDB, MEDLINE, TOXCENTER, USPATFULL
(*File contains numerically searchable property data)
Other Sources: EINECS**, NDSL**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

52 REFERENCES IN FILE CA (1962 TO DATE)
52 REFERENCES IN FILE CAPLUS (1962 TO DATE)
7 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 137:321544

REFERENCE 2: 136:247644

REFERENCE 3: 135:107069

REFERENCE 4: 135:107068

REFERENCE 5: 135:29904

REFERENCE 6: 134:233091

REFERENCE 7: 134:131253

REFERENCE 8: 134:109910

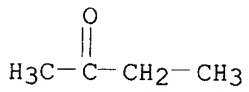
REFERENCE 9: 133:146265

REFERENCE 10: 130:324940

=> d ide can 18

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 78-93-3 REGISTRY

CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN 3-Butanone
CN Butanone
CN Ethyl methyl ketone
CN MEK
CN **Methyl ethyl ketone**
FS 3D CONCORD
DR 135311-02-3
MF C4 H8 O
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

19505 REFERENCES IN FILE CA (1962 TO DATE)
173 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
19529 REFERENCES IN FILE CAPLUS (1962 TO DATE)
10 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 138:214695

REFERENCE 2: 138:214657

REFERENCE 3: 138:214651

REFERENCE 4: 138:214296

REFERENCE 5: 138:213944

REFERENCE 6: 138:212813

REFERENCE 7: 138:212788

REFERENCE 8: 138:212782

REFERENCE 9: 138:209349

REFERENCE 10: 138:209218

=> d ide can 19

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 109-89-7 REGISTRY
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:

CN **Diethylamine (8CI)**
OTHER NAMES:
CN DEA
CN N,N-Diethylamine
FS 3D CONCORD
MF C4 H11 N
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

$H_3C-CH_2-NH-CH_2-CH_3$

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

14561 REFERENCES IN FILE CA (1962 TO DATE)
883 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
14581 REFERENCES IN FILE CAPLUS (1962 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 138:207281

REFERENCE 2: 138:205463

REFERENCE 3: 138:205229

REFERENCE 4: 138:205051

REFERENCE 5: 138:200070

REFERENCE 6: 138:197741

REFERENCE 7: 138:197696

REFERENCE 8: 138:197629

REFERENCE 9: 138:194052

REFERENCE 10: 138:192439

=> d ide can l10

L10 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2003 ACS
RN 74-90-8 REGISTRY
CN **Hydrocyanic acid (8CI, 9CI)** (CA INDEX NAME)
OTHER NAMES:
CN Carbon hydride nitride (CHN)
CN Evercyn
CN Formic anammonide
CN Formonitrile
CN Hydrogen cyanide

CN Prussic acid
CN Zyklon B
DR 341972-31-4
MF C H N
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

N
HC

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

11482 REFERENCES IN FILE CA (1962 TO DATE)
213 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
11489 REFERENCES IN FILE CAPLUS (1962 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 138:209211

REFERENCE 2: 138:206858

REFERENCE 3: 138:205462

REFERENCE 4: 138:201810

REFERENCE 5: 138:195277

REFERENCE 6: 138:195216

REFERENCE 7: 138:195200

REFERENCE 8: 138:190465

REFERENCE 9: 138:186996

REFERENCE 10: 138:177624

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 17:24:08 ON 02 APR 2003

FILE COVERS 1907 - 2 Apr 2003 VOL 138 ISS 14
FILE LAST UPDATED: 1 Apr 2003 (20030401/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all hitstr l22

L22 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2003 ACS
AN 2001:101098 HCAPLUS
DN 134:131253
TI Method and catalyst for making **methyl ethyl ketone** cyanohydrin
IN Croizy, Jean-francois; Esch, Marc; Esquirol, Gilbert
PA Atofina, Fr.
SO PCT Int. Appl., 13 pp.
CODEN: PIXXD2
DT Patent
LA French
IC ICM C07C253-00
ICS C07C255-12
CC 23-19 (Aliphatic Compounds)
Section cross-reference(s): 45, 67
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001009085	A1	20010208	WO 2000-FR2136	20000725
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	FR 2796939	A1	20010202	FR 1999-9859	19990729
	FR 2796939	B1	20010914		
	EP 1206445	A1	20020522	EP 2000-958611	20000725
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
PRAI	FR 1999-9859	A	19990729		
	WO 2000-FR2136	W	20000725		

OS CASREACT 134:131253
AB **Me Et ketone** cyanohydrin is prepd. in high yield and selectivity by reacting **hydrocyanic acid** and 2-butanone in the presence of catalytic amts. of **diethylamine**.
ST butanone cyanohydrin prepn; **diethylamine** hydrocyanation catalyst
butanone cyanohydrin prepn
IT Hydrocyanation catalysts
(**diethylamine** for the conversion of **hydrocyanic acid** and 2-butanone in the manuf. of **Me Et ketone** cyanohydrin)
IT Hydrocyanation
(of **hydrocyanic acid** and 2-butanone in the manuf. of **Me Et ketone** cyanohydrin)
IT **109-89-7, Diethylamine**, uses

RL: CAT (Catalyst use); USES (Uses)
(method and catalyst for making **Me Et ketone** cyanohydrin)

IT **74-90-8, Hydrogen cyanide,** reactions
78-93-3, Methyl ethyl ketone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(method and catalyst for making **Me Et ketone** cyanohydrin)

IT **4111-08-4P, Methyl ethyl ketone** cyanohydrin
RL: SPN (Synthetic preparation); PREP (Preparation)
(method and catalyst for making **Me Et ketone** cyanohydrin)

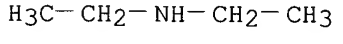
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; HOUBEN-WEYL METHODEN DER ORGANISCHEN CHEMIE BAND VIII 1952, P274
(2) Saito, M; HCAPLUS
(3) Saito, M; JPN KOKAI TOKKYO KOHO P7
(4) Union Carbide Corp; WO 8500166 A 1985 HCAPLUS

IT **109-89-7, Diethylamine,** uses
RL: CAT (Catalyst use); USES (Uses)
(method and catalyst for making **Me Et ketone** cyanohydrin)

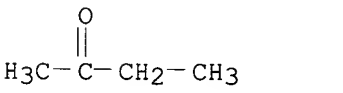
RN 109-89-7 HCAPLUS
CN Ethanamine, N-ethyl- (9CI) (CA INDEX NAME)



IT **74-90-8, Hydrogen cyanide,** reactions
78-93-3, Methyl ethyl ketone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(method and catalyst for making **Me Et ketone** cyanohydrin)

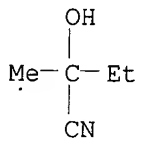
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



IT **4111-08-4P, Methyl ethyl ketone** cyanohydrin
RL: SPN (Synthetic preparation); PREP (Preparation)
(method and catalyst for making **Me Et ketone** cyanohydrin)

RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)



=> d bib abs hitstr tot 123

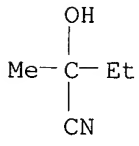
L23 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 2001:224394 HCAPLUS
DN 134:233091
TI Preparation of plant-derived biopesticides and their synthetic analogs
IN Coats, Joel R.; Peterson, Christopher J.; Tsao, Rong; Eggler, Aimee L.; Tylka, Gregory L.
PA Iowa State University Research Foundation, Inc., USA
SO U.S., 18 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6207705	B1	20010327	US 1997-828190	19970321
PRAI US 1996-13956P	P	19960322		

AB Biopesticide compns. comprise a purified glucosinolate breakdown product wherein a starting material for the purified glucosinolate breakdown product is isolated from a crambe, rapeseed, flax, cassava, or mustard plant. Glucosinolate breakdown products, such as 1-cyano-2-hydroxy-3-butene, di-Me ketone cyanohydrin, **Me Et ketone** cyanohydrin, 3-cyano-3-hydroxy-1-propene, etc., and their analogs, as well as monoterpenoids are purified from plant exts. or synthetically prepd. The biopesticides are used against insects, mites, ticks, and nematodes as contact pesticides, aquatic pesticides, or fumigants.

IT **4111-08-4P, Methyl ethyl ketone** cyanohydrin
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(prepn. of plant-derived biopesticides and their synthetic analogs)

RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)

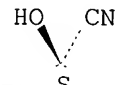


RE.CNT 53 THERE ARE 53 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

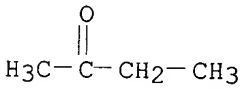
L23 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:154053 HCAPLUS
DN 124:224570
TI The first recombinant hydroxynitrile lyase and its application in the synthesis of (S)-cyanohydrins
AU Foerster, Siegfried; Roos, Juergen; Effenberger, Franz; Wajant, Harald; Sprauer, Achim

CS Inst. Org. Chemie Univ., Stuttgart, D-70569, Germany
SO Angewandte Chemie, International Edition in English (1996), 35(4), 437-9
CODEN: ACIEAY; ISSN: 0570-0833
PB VCH
DT Journal
LA English
AB The authors overexpressed Manihot esculenta hydroxynitrile lyase (meHNL) in Escherichia coli. Enantioselective addn. of **hydrocyanic acid** to several aldehydes and ketones was by enzyme immobilized on nitrocellulose and using diisopropyl ether as solvent was demonstrated.
IT **174849-22-0P**
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(purifn. and characterization of recombinant hydroxynitrile lyase and its application in synthesis of (S)-cyanohydrins)
RN 174849-22-0 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl-, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



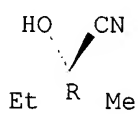
IT **78-93-3**, 2-Butanone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(purifn. and characterization of recombinant hydroxynitrile lyase and its application in synthesis of (S)-cyanohydrins)
RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1993:443947 HCAPLUS
DN 119:43947
TI Improved purification of an (R)-oxynitrilase from Linum usitatissimum (flax) and investigation of the substrate range
AU Albrecht, Jens; Jansen, Inge; Kula, Maria Regina
CS Inst. Enzymtechnol., Heinrich-Heine-Univ., Juelich, D-5170, Germany
SO Biotechnology and Applied Biochemistry (1993), 17(2), 191-203
CODEN: BABIEC; ISSN: 0885-4513
DT Journal
LA English
AB The purifn. of (R)-oxynitrilase (EC 4.1.2.10) from Linum usitatissimum has been improved considerably. The enzyme is obtained from seedlings in 60% yield by fractional salt pptn. followed by ion-exchange and hydrophobic-interaction chromatog. Final gel-permeation chromatog. yields a protein with a specific activity of 53 units/mg at pH 4.1. The N-terminal sequence is reported and microheterogeneity demonstrated. The substrate range was investigated using (R)-oxynitrilase immobilized on Eupergit and tert-Bu Me ether as solvent. The addn. of **HCN** to various aliph. ketones and aldehydes is catalyzed by the enzyme, while arom. ketones are not converted. (R)-butan-2-one cyanohydrin was synthesized on a preparative scale and the product characterized.
IT **122045-29-8P**, (R)-Butan-2-one cyanohydrin

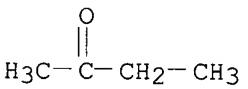
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, by immobilized oxynitrilase of flax)
RN 122045-29-8 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT **74-90-8, Hydrogen cyanide**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aliph. ketones and aldehydes in oxynitrilase presence)
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

IT **78-93-3**, Butanone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with oxynitrilase of Linum usitatissimum)
RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1993:58234 HCAPLUS
DN 118:58234
TI Enzymic preparation of (R)-methyl and (R)-ethylketone cyanohydrins
IN Effenberger, Franz; Ziegler, Thomas; Hoersch, Brigitte; Heid, Stephan
PA Degussa A.-G., Germany
SO Ger., 4 pp.
CODEN: GWXXAW
DT Patent
LA German
FAN.CNT 1

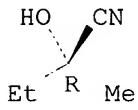
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 4102327	C1	19920604	DE 1991-4102327	19910126
PRAI DE 1991-4102327		19910126		

OS MARPAT 118:58234
AB (R)-Ketone cyanhydrins are prepd. for use in the manuf. of .alpha.-hydroxy-.alpha.-ethyl- or .alpha.-hydroxy-.alpha.-methyl-carboxylic acids from the corresponding ketone and **HCN** using (R)-oxynitrilase in an org. solvent. The enzyme is prepd. from almonds and is preferably immobilized. Almond (R)-oxynitrilase 100 units (1000 units/mL) was adsorbed onto Avicel cellulose 1 g (preswollen in Na acetate buffer pH 4.5) in diisopropylether 20 mL. **Methylethyl ketone** 5 mmol, and anhyd. **HCN** 400 .mu.L were added and the mixt. incubated at 0.degree. for 4 h. Yield of (R)-

methylethyl ketone cyanhydrin was 80% with an enantiomeric excess of 76%.

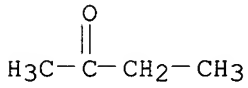
IT **122045-29-8P**
RL: PREP (Preparation)
(prepn. of, enzymic, from ketone, with immobilized oxynitrilase)
RN 122045-29-8 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



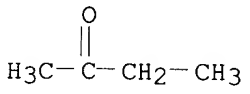
IT **74-90-8, Hydrogen cyanide**, reactions
78-93-3, Methylethyl ketone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions of, in prepn. chiral cyanohydrins with immobilized oxynitrilase)
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1991:491338 HCAPLUS
DN 115:91338
TI Enzyme catalyzed reactions. 9. Enzyme-catalyzed synthesis of (R)-ketone cyanohydrins and their hydrolysis to (R)-.alpha.-hydroxy-.alpha.-methyl carboxylic acids
AU Effenberger, Franz; Hoersch, Brigitte; Weingart, Franz; Ziegler, Thomas; Kuehner, Stefan
CS Inst. Org. Chem., Univ. Stuttgart, Stuttgart, 7000/80, Germany
SO Tetrahedron Letters (1991), 32(23), 2605-8
CODEN: TELEAY; ISSN: 0040-4039
DT Journal
LA English
OS CASREACT 115:91338
AB (R)-Ketone cyanohydrins (R)-HOCRMeCN (I) are obtained with high enantioselectivity from aliph. ketones and **HCN** in org. solvents using (R)-oxynitrilase (EC 4.1.2.10) as catalyst. Acid catalyzed hydrolysis of I affords the corresponding (R)-.alpha.-hydroxy-.alpha.-methyl carboxylic acids without measurable racemization.
IT **78-93-3**, Ethyl methyl ketone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(enantioselective addn. of **hydrogen cyanide** to, in presence of oxynitrilase)
RN 78-93-3 HCAPLUS

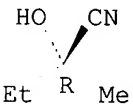
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



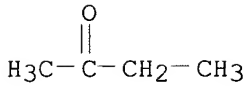
IT **74-90-8, Hydrogen cyanide**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(enantioselective addn. of, to ketones in presence of oxynitrilase)
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

IT **122045-29-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and hydrolysis of)
RN 122045-29-8 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



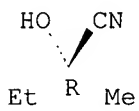
L23 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1989:573178 HCAPLUS
DN 111:173178
TI Asymmetric hydrocyanation of a range of aromatic and aliphatic aldehydes
AU Matthews, Barry R.; Jackson, W. Roy; Jayatilake, Gamini S.; Wilshire, Colin; Jacobs, Howard A.
CS Dep. Chem., Monash Univ., Clayton, 3168, Australia
SO Australian Journal of Chemistry (1988), 41(11), 1697-709
CODEN: AJCHAS; ISSN: 0004-9425
DT Journal
LA English
OS CASREACT 111:173178
AB A range of aryl, alkyl and heterocyclic aldehydes have been treated with **HCN** in the presence of the Inoue catalyst, (R,R)- or (S,S)-cyclo[phenylalanylhistidyl]. Most aryl aldehydes with electron-donating substituents in the m- or p-positions give high enantiomeric excess (e.e.) values (.gtoreq.80%), but aryl aldehydes with strong electron-withdrawing substituents gave moderate e.e. values (.ltoreq.50%). These moderate values are believed to be due to partial racemization of the product cyanohydrins in the presence of the mildly basic catalyst. In contrast to the reactions of aryl aldehydes, reactions of alkyl aldehydes and of ketones gave low e.e. values (.ltoreq.30%), an explanation is proposed.
IT **78-93-3**, 2-Butanone, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrocyanation of, catalyst for)
RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



IT **74-90-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrocyanation, stereoselective, of arom. and aliph. aldehydes)
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

IT **122045-29-8P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 122045-29-8 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

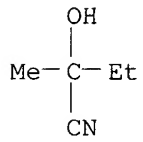


L23 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1985:199688 HCAPLUS
DN 102:199688
TI Properties of a microsomal enzyme system from Linum usitatissimum (linen flax) which oxidizes valine to acetone cyanohydrin and isoleucine to 2-methylbutanone cyanohydrin
AU Cutler, Adrian J.; Sternberg, Margarete; Conn, Eric E.
CS Dep. Biochem. Biophys., Univ. California, Davis, CA, 95616, USA
SO Archives of Biochemistry and Biophysics (1985), 238(1), 272-9
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English
AB Microsomal prepns. from flax seedlings have recently been shown to convert L-valine to acetone cyanohydrin, the precursor of the cyanogenic glucoside linamarin (Cutler, A. J.; Conn, E. E., 1981). Further details of this 4-step biosynthetic sequence and also details of the analogous reactions in lotaustralin biosynthesis have been obtained. The lotaustralin precursor, 2-methylbutyraldoxime, is the best substrate for cyanide prodn. (Vmax = 413 nmol h-1 g fresh wt.-1) and inhibits the conversion of valine and isoleucine into products. Similarly, the linamarin precursor isobutyraldoxime is an excellent substrate (Vmax = 400 nmol h-1 g fresh wt.-1) and also inhibits oxidn. of the amino acids. The substrate specificity of the oxime-metabolizing step is low and a variety of aliph. oximes are converted to cyanide. On the other hand, the activity of the microsomal ext. is highly selective with regard to the amino acid substrate since, of the aliph. amino acids tested, only valine and isoleucine are metabolized. Product formation from isobutyronitrile (a linamarin precursor) was not demonstrated, but detectable cyanide formation from 2-methylcyanobutane, the corresponding precursor of lotaustralin was obsd. Competition expts. showed that the biosynthesis of

linamarin and lotaustralin is not likely to be catalyzed by sep. enzyme systems.

IT **4111-08-4P**
RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, from isoleucine oxidn. by flax microsomes)

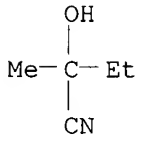
RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)



L23 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1984:20417 HCAPLUS
DN 100:20417
TI Four aliphatic esters of Chamaemelum fuscatum essential oil
AU De Pascual-T., J.; Caballero, E.; Caballero, C.; Anaya, J.; Gonzalez, M. S.
CS Dep. Org. Chem., Salamanca Univ., Salamanca, Spain
SO Phytochemistry (Elsevier) (1983), 22(8), 1757-9
CODEN: PYTCAS; ISSN: 0031-9422
DT Journal
LA English
AB In addn. to known compds., the esters H2C:CMeCO2CH2R [R = CMe:CHMe-(Z), CMe(OH)CH:CH2, CMe(OH)COMe] and neryl isovalerate were isolated from the essential oil of C. fuscatum and their structures were established by spectral methods and by synthesis.

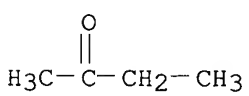
IT **4111-08-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and hydrolysis-elimination reaction of)

RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)



IT **78-93-3**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with sodium cyanide)

RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)

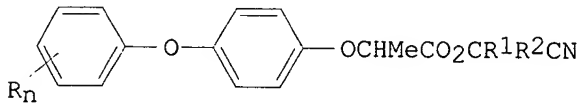


L23 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1982:6417 HCAPLUS

DN 96:6417
TI Cyanomethyl .alpha.-(p-phenoxyphenoxy)propionates
PA Compagnie Francaise de Produits Industriels, Fr.
SO Fr. Demande, 41 pp. Addn. to Fr. Appl. No. 79 01,020.
CODEN: FRXXBL
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2473514	A2	19810717	FR 1981-666	19810115
PRAI	US 1980-112352		19800115		

GI

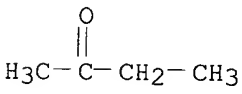


I

AB Title esters I [n = 1, 2; R = Cl, CF3; R1 and R2 (same or different) are H, alkyl, chlorophenyl, (trifluoromethyl)phenyl, or R1R2 = polymethylene], useful as herbicides, were prepd. by different methods. Thus, 4-(4-F3CC6H4O)C6H4OCHMeCO2H was converted to its acid chloride, which was esterified with Me2C(OH)CN and pyridine to give I (Rn = 4-F3C, R1 = R2 = Me). Herbicidal activity data are presented for I.

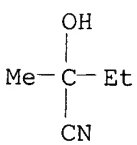
IT **78-93-3**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(conversion of, to cyanohydrin)

RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)



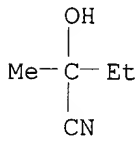
IT **4111-08-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, and esterification of .alpha.-(p-phenoxyphenoxy)propionyl chloride deriv. by)

RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)



L23 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2003 ACS
AN 1972:58924 HCAPLUS
DN 76:58924
TI Synthesis of unsaturated aliphatic nitriles
AU Mekhtiev, S. I.; Mamedov, R. G.
CS VNIIolefin, Baku, USSR
SO Azerbaidzhanskii Khimicheskii Zhurnal (1971), (2), 110-15

CODEN: AZKZAU; ISSN: 0005-2531
DT Journal
LA Russian
AB Cyanohydrins (I) (80-95% based on **HCN**) were obtained by hydrocyanidation of ketones in the presence of KOH. The stability of I in alk. medium increased with increase of their mol. wt. Alkylacrylonitriles (II) were prepd. by dehydrating I from MeCOEt, Et2CO, MeCOPr, and MeCOBu. II (80-2% based on converted I) were obtained at I-P2O5-quinoline mole ratio 1:1.25:1, 60-80.degree., and reaction time 1 hr.
IT **4111-08-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 4111-08-4 HCAPLUS
CN Butanenitrile, 2-hydroxy-2-methyl- (9CI) (CA INDEX NAME)



IT **74-90-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with aliphatic ketones)
RN 74-90-8 HCAPLUS
CN Hydrocyanic acid (8CI, 9CI) (CA INDEX NAME)

IT **78-93-3**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(with **hydrocyanic acid**)
RN 78-93-3 HCAPLUS
CN 2-Butanone (8CI, 9CI) (CA INDEX NAME)